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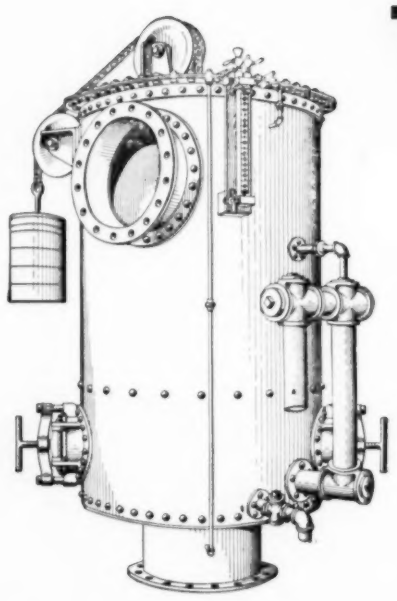

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ADDRESS OF THE PRESIDENT, MR. JAMES T. LYNN, TO THE TENTH ANNUAL MEETING, NATURAL GAS ASSOCIATION OF AMERICA.

Association Matters.—Gas Company Policy.—Minimum Rates.—Uniform Accounting.—Regulation and Control, Municipal and State.—Malicious Agitation.—Taxation, Liberty and Freedom.

When honored by being elected President of this Association, the fundamental idea I had in mind was that whatever affects one member must naturally affect all others to a greater or less degree; consequently all, of necessity, should work in harmony for the common interest. Impressed with this idea of unity and co-operation, I called the Board of Directors and Advisory Committee together several times during the year for the purpose of discussing and acting on matters of interest to the Association. These meetings were well attended and the problems before us were discussed most thoroughly. I am convinced that these meetings should be a regular feature in future administrations. Whatever measures of success have been attained during the past year, is owing, I may say, almost entirely to these meetings and to the loyal and friendly co-operation manifested by the officers and members. To me, as it must be to the members of the Association, this spirit is most gratifying. I wish now and here to publicly express my thanks to all members and in particular to the officers and directors for the splendid support accorded me during this administration.

During the year certain results accomplished have been of great benefit to the Association. I will touch upon these only briefly, as I have a number of suggestions and recommendations to offer for your consideration.

The Department of Petroleum Technology received from the previous Congress an appropriation of $25,000 to carry on investigations and inquiry concerning petroleum and natural gas. I am happy to announce that, due to the active and unceasing efforts of your officers, directors and members, the appropriation was inincreased to $50,000 for the present year.

The committee appointed to oppose making pipe lines common carriers was successful in defeating this and other proposed vicious legislation.

While our Association expenses have been quite heavy in the past, we must expect them to be even greater in future. This calls for a larger income, which it has been suggested might be obtained by raising the membership dues. This method, however, I do not favor. In the past, membership of our Association has been composed almost entirely of individuals. The purpose of this Association, however, is to represent and protect the industry as a whole. It would seem to follow, therefore, that gas companies should be more generally represented in it. This can be done by companies enrolling and paying the annual dues of their officers, superintendents and heads of departments who are not at present members. By this means our income will be largely increased, and morever, will be derived from those institutions that are benefited by our organization.

Certain manufacturers, I regret to learn, have notified the secretary during the past year of their intention to withdraw from this Association, claiming they were not receiving sufficient benefit and were paying double dues. They should know their Association cannot live without the support of the parent organization, and if the older organization is weakened it is inevitable that the manufacturers' association cannot survive. For their own protection, therefore, the manufacturers should support the parent body and do all within their power to make the parent body powerful and influential. Whatever benefits us must inevitably benefit them.

Heretofore, we have depended upon various journals for information concerning our business. The officers and directors, having carefully discussed the matter, recommend that a monthly or quarterly bulletin be issued by the Association for circulation among our members. It will impart timely information of our business; will encourage interest in the Association, and aid members in getting in closer touch with each other. The benefit derived from such a bulletin will amply repay all costs incurred in its publication.

At the suggestion of Mr. F. W. Stone, editor of the Wrinkle Department, your president appointed a special committee to award prizes in this department. The committee devoted much time and attention to their work, and are to be highly commended for their efforts. Believing that good results in future will be accomplished by such a committee, I recommend that a committee be appointed by the president to decide winners and award prizes in this department.

Few consumers appreciate the fact that natural gas is the cleanest, cheapest and most economical fuel in use to-day. Nor do they seem to realize that it meets with active competition from oil, coal and electricity.

The time is fast approaching when the supply of natural gas will be insufficient to meet the demand. Even to-day, in many fields, large power consumers are unable to obtain sufficient for their requirements. This decreasing supply will compel gas companies to depend upon domestic business for their total earnings. Decreased supply naturally increases the cost, and when companies are obliged to depend upon domestic business alone, they must increase their selling price to make a reasonable return on investment. Quite a few companies find themselves in this position to-day, but even with higher rates, natural gas will still be the cheapest fuel for domestic purposes.

Formerly the policy of gas companies was to confer directly with the common council or state commission when making an application for an increase in rates, because these matters had been left entirely in their charge. In recent years, changes have taken place through the education of the people, and make it necessary for us to adapt ourselves to the changed conditions. The people, either by themselves or by representatives, grant the privileges and they also use our commodity; consequently they are entitled to know our reasons when we ask for an increase in rates or other necessities. Informing and educating the people of a community on any great question, is slow work—especially when prejudice and passion have been aroused. It requires years for us to understand the many phases of public utilities, yet some men expect the public to understand these questions in a day or week. It cannot be done. If we want the public to have an intelligent knowledge of our business, let us recognize the fact that we must devote our efforts to painstaking educational work. It is a big task—but in the end it will pay—and pay well. I therefore suggest that our

members furnish the press from time to time with information that will enable the people to understand the peculiar character of our business. We should give the public the same information we give to the city councils or state commissions when we make formal application for an increase in price.

All franchises, price ordinances, or orders from Public Utility Commissions, should include a minimum rate and a readiness to serve charge. Every gas company ought to insist upon them. These charges are absolutely fair and just, and cannot be objected to seriously by any fair-minded legislative body or commission.

I now touch upon a subject of vital importance to municipalities and of equal concern to Public Utilities—that of a uniform accounting system. Had uniform accounting been instituted years ago, one of the leading arguments for municipal ownership—that of enormous profits—would have been swept aside by a disclosure of the real facts. A business man must know the cost of his goods before he can determine and fix the selling price. If he sells them without ascertaining this cost, sooner or later he will probably find himself in bankruptcy. This is the A. B. C. of business, yet many cities sell gas, water and electricity at rates that will eventually imperil their credit. How can it be otherwise under their present system? This unsatisfactory condition is not the result of desire to deceive the public, but instead, is due to the obsolete and inaccurate accounting system employed in municipalities. Whether intentional or otherwise, the fact remains that the actual cost of municipal operation is not known. True, some reports endeavor to give these costs, but upon close examination, we find they are not correct. I do not know of a single city operating its own water, gas or electric light plants, that includes in the cost of operation any charge for interest on capital invested, depreciation, obsolescence, inadequacy, insurance or loss of taxes. Why not? All these items are admitted by the courts, as well as by State commissions, to be legitimate charges in the cost of operation of privately operated utilitities. Why not, then, of municipal utilities? Municipalities may console themselves with the thought, however, that, even though municipal bookkeeping may not disclose these costs, nevertheless "They're There," and eventually must be paid. Bond issue and increased taxes to cover annual deficits proves it. Every tax payer is compelled to pay his share of the cost of municipal public service whether he uses the service or not. He may be an owner of vacant or unimproved property, nevertheless, he is obliged to support by taxes, the water, gas and electric utilities, and as a tax payer, although a non-user, he has a right to know the cost of operating these utilities and to insist that they be not operated at a loss. If he is not told the truth, he is being unjustly deprived of his rights. He is being fooled—unintentionally, perhaps—but fooled, nevertheless. A uniform accounting system covering all utilities should be compulsary. Only in that way will the public really know the cost of such service, whether furnished by a municipality or by private corporation. Only with these facts before them, can a reasonable rate be determined. The people are not afraid to face the truth.

The trend of the times is towards government control and ownership of business. We thereby openly confess our weakness as a people. Government regulation is not a new thing, nor have previous experiments proven so alluring as to justify other trials. However, if the people want regulation and control of public utilities in this country, let it be intelligent and scientific and, above all, non-political.

Time will permit me to discuss only briefly the important points in municipal and state regulation. Municipal regulation is narrow, prejudiced and ignorant; therefore, harmful to all parties. It is narrow because the councilman, representing a particular ward, is dependent upon his constituents for political support and hence is easily responsive to their whims. Consequently he cannot consider the public utility from the broad survey of what is best, but must look at the question from a restricted view-point. It is prejudiced because resentment having been aroused by the yellow press and the political demagogue against the public utility, brings into the matter passions and prejudices that have no place in regulation. The closer one stands to prejudice and passion the more blinded he becomes. This antagonism affects the councilmen who sometimes forget that the true interests of the public and the public utility are mutual. Municipal regulation is ignorant and unscientific because the average official has neither expert knowledge nor training in this field. No matter how honest and sincere he may be, the fact that he lacks expert knowledge disqualifies him for the position.

In state regulation the commissioners, removed from local influence, can judge dispassionately of the merits of any question. They are usually men of recognized ability and experience, having practical knowledge of finance, public service and law. By reason of their qualifications and the nature of their appointment, State Commissioners are best qualified to know what is best for both the public utility and the community.

A municipality has no engineering or accounting staff of experts, because of the large expense involved, and the fact that these agencies are seldom required. On the other hand, a State Commission, having jurisdiction over hundreds of cities, has both the means to engage experts and the necessary work to keep them steadily employed. For these reasons state regulation is more intelligent and scientific than municipal regulation. Its success, however, is due not so much to the law itself as it is to the intelligent application of the law and to the personnel of the commission. Wherever intelligent application of the law is directed by high class men, the result has usually proven satisfactory to both the public and the public utility.

I now come to one of the most dangerous and insidious influences operating to destroy business, to disrupt society, even to undermine government itself. I refer to the socialistic and paternalistic propaganda cunningly concealed under the alluring slogan, "The People's Rights." During the past few years, a campaign of villification and misrepresentation against business has been carried on by certain paternalistic and socialistic forces, known as the yellow press, the political demagogue and the professional labor agitator. Every business man, whether in the commercial field or in the public service, welcomes intelligent criticism from the thoughtful press, the constructive statesman and the conservative labor leader. These latter types, guided by reason, experience and judgment, are progressive in the true sense—they aim to build up. The demagogue, on the other hand, directed by passion, prejudice and misinformation, invariably tends to destroy. The yellow press, with its cry, "To Hell with the Supreme Court," has inculcated disrespect for properly constituted authority, and arrayed poor against rich, workman against employer. Political demagogues, spouting about "Special interests preying on the poor," advocate the most drastic regulatory and inquisitorial laws ever devised in the history of the country. The professional labor agitator, not to be outdone, initiated the false and malicious doctrine that honest workmen are "slaves" and that the rich man got his wealth dishonestly. This pernicious and disturbing agitation, carried on for years, has resulted in unrest and uneasiness; society is disrupted; business seriously disturbed, and confidence in American securities greatly shaken. It is really one of the prime factors responsible for the present depression and unemployment existing in the United States. In this connection, Senator Elihu H. Root declared: "No one knows whether great industrial or commercial organizations, no matter how scrupulously they obey the law, are to be permitted to continue. No one knows when the malice and misrepresentation of a disappointed competitor or the loose declamation of a demagogue may bring the new inquisitorial powers of government down to destroy credit and ruin an understanding."

These agitators do not tell their dupes that the rich man of to-day was the poor man of yesterday—and may be the poor man of to-morrow; nor that the poor man of to-day may be the rich man to-morrow. They do not tell them that 90% of our rich men started life in the ranks of the poor. Nor do they tell honest workingmen that the poor have existed from the beginning of the world and will be with us to the end of the world; that the rich man can keep his wealth only so long as he is able to do so—the moment his hands become weak, his wealth will be snatched from him by stronger hands. No, the demogogues never mention these facts—they would be telling the truth—and truth and demagoguery don't walk hand in hand. The old saying: "It is only three generations from shirt sleeves to shirt sleeves," is true in America to-day.

In spite of the saying that "We are best governed when least governed," these dangerous forces have almost succeeded in legislating us to death. Regulatory, inquisitorial and taxation laws of the most drastic nature have been put into force against successful business. During the five years ending December 1st, 1914, more than 62,000 laws were passed by Congress and various State legislatures. John Marshall, famous Chief Justice of the Supreme Court of the United States, was aware of the danger of excessive taxation. "While the primary purpose of taxation is to raise money for the government," he declared, "This power of tax has been used to destroy." Glancing over the 65,000 judicial decisions rendered during the same period, is it strange that business men don't know "where they're at?"

Abusing the power of taxation, regulating prices of all commodities and instituting inquisitorial commissions were the usual methods adopted by Roman emperors to extort money from the

people. It proved "easy picking" at first for the government but rather hard on the "fellow who had to pay." Eventually these abuses became so pronounced and the burden so heavy that gradually manufacturing ceased, lands were abandoned and farms left uncultivated. The people were simply taxed and regulated to death. The story of Rome is the story of regulation, taxation and socialism tried out and found to be frightfully wanting. The people looked to the State to provide happiness, instead of seeking it in their family, among their friends and in their own business, The vast system of socialism determined prices and wages throughout the country. The prices of all foods, grain, wine, oil, meat, fish and vegetables were on the non-competitive arrangement fixed by the State. Rome finally achieved an enormous non-competitive population. A gigantic leisure class resulted, purchased at the loss of individual liberty. Then came the reaction. Stripped of their ambitions, deprived of an incentive to go ahead, regulated and taxed to death, the people lapsed into a condition of savagery —each one producing for himself. The Roman Empire began to crumble. Never in the history of the world was such socialistic splendor—and never a greater downfall.

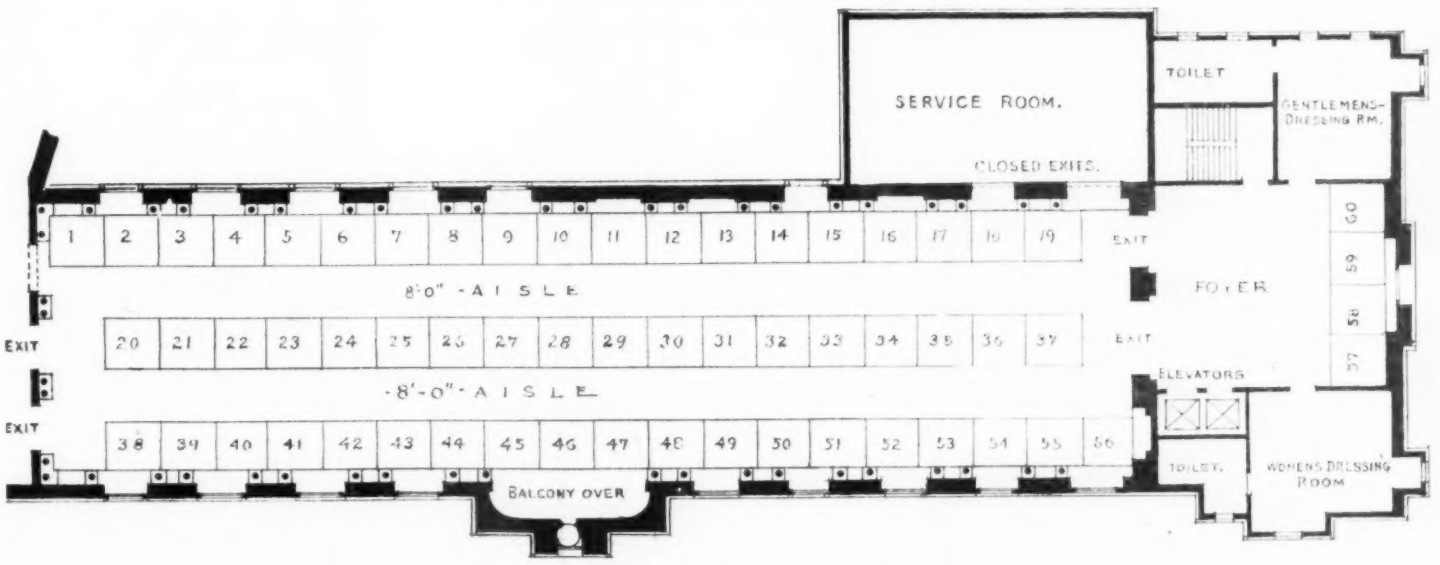
When an engineer wants to stop his train. he puts on the brakes. That is exactly what our government has been doing to business—it applies brakes of all kinds, regulatory, inquisitorial and condemnatory. Referring again to the impositions practiced during the Roman Empire; to the regulatory and inquisitorial laws; to the stifling of individual initiative; to the abuses of the power of taxation; to the socialistic and paternalistic tendencies of that period; to its degradation and final downfall; and then comparing those causes and results with the present attempts to harass business; to fix prices; to throttle individual enterprise through government control, regulation and ownership of business—comparing these two countries, the dead Roman Empire and the present live United States, who, I ask, can declare with any degree of certainty that the downfall of the great Roman nation, may not, from identical causes, be repeated in our own time?

In laying the foundation of the United States, the wise patriots and statesmen in convention upheld the fundamental truth that progress and prosperity depend upon liberty and freedom. Thomas Jefferson, founder of the present Democratic party, in extolling this principle, declared, "Agriculture, manufacturing, commerce and transportation, the four great pillars of our prosperity are most thriving when left most free to individual enterprise." In these few words he makes clear two fundamental principles of widest interest to-day. He declared that liberty and freedom of the individual are absolutely essential to prosperity. He also made clear that prosperity is based on individual enterprise. In other words, Thomas Jefferson, the patriot and statesman, would be opposed to the regulatory Interstate Commerce Commission, to the Sherman Anti-Trust Law, and to the many other inquisitorial and regulatory commissions now in existence. He would also be opposed to government control or ownership as being in contravention to the basic principle that all social and industrial progress is founded on individual enterprise. When we compare Jefferson with those men in public life to-day who profess great reverence for him and endeavor to emulate him, we are constrained to believe, that somewhere between then and now, the connection was rudely broken off. Jefferson declared for perfect freedom and liberty, certain so-called followers of Jefferson, insist in restricting liberty and freedom. Jefferson held that individual enterprise is the basis of progress; the policy of the present administration seems to be to deny this principle in an attempt to force government ownership and operation of merchant marine. Truly, there is a difference between patriotism and politics.

The imminent danger to the United States lies in the growing power and sinister influence of demagoguery, ignorance, socialism and paternalism. The only effective antidote for this peril is in the leadership of real men. We must have intelligent, fearless, patriotic leaders who, in the fight for a return to true democratic principles, will not be influenced by the passing clamor of the mob, nor swerved by the vomiting of press or political quackery.

We must aid these leaders in consigning the Yellow Press to the garbage can and clamping tight the cover. We must assist them in exposing the political demagogue in all his selfishness, dishonisty and quackery. We must help them in suppressing the blackmailing professional labor agitator. We must co-operate with them in demanding a return to the fundamental principles of liberty, freedom and individual initiative, under which our country prospered so gloriously for a hundred years. These results accomplished—and they can be brought about only by arousing Americans to their danger—then paternalism, socialism and other non-American forces will be destroyed, and liberty and freedom purchased by the blood of our forefathers will be preserved as a priceless heritage to posterity. Herein lies our duty as true Americans.

THE GAS SHOW AT WASHINGTON.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TOILET
WOMENS DRESSING ROOM
BALCONY OVER

Plan of Booths in Exhibition Hall.

The room secured for the Exhibition Hall in the New Willard Hotel at Washington, on the occasion of the coming convention of the National Commercial Gas Association, adjoins the room in which the sessions are to be held. This is an ideal arrangement, confining the interest of those attending the convention to one building and to one floor. The space has been divided into 60 booths as per the plan shown above, and as they are not as large as in previous years, it is expected that only the very latest appliances will be shown. The limited number of booths make it important that those contemplating making an exhibit should act promptly. as the demand is sure to exceed the supply.

The show is in charge of the Manufacturers' Section of the National Commercial Gas Asssociation, and applications for space and requests for information should be addressed to W. W. Barnes, Secretary of the Section, No. 101 Park avenue, New York city.

GAS STREET LIGHTING DEVELOPMENT.

[Paper read by F. R. HUTCHINSON, before Pittsburgh Section, I. E. S.]

What has been done in Cleveland and elsewhere, in developing new lamps and Standards.

It shall be my aim in more or less briefly covering this subject to present, by illustration and description, a few of the many styles of gas street lighting standards and lamps designed and put in general use since the introduction of the old flat flame gas lamp. Some comparisons of candle power will be given, but many others are not mentioned as complete data was not available.

Fig. 1 pictures the flat flame gas lamp.

Fig. 1.—Flat Flame Unit.

On a gas consumption of 6½ cubic feet of manufactured gas per hour, this lamp developed a lower hemispherical candle-power of about 27.

Fig. 2 shows the type of incandescent mantle street light known as the "Boulevard Lamp," commonly used following the introduction of the incandescent gas mantle. This style of lamp is to-day still popular and there are more gas lamps of this design in use in America than of any other kind.

Fig. 2.—Upright Mantle Unit.

The Boulevard Lamp develops a lower hemispherical candle-power of sixty-four, and consumes three and one-half cubic feet of manufactured gas per hour.

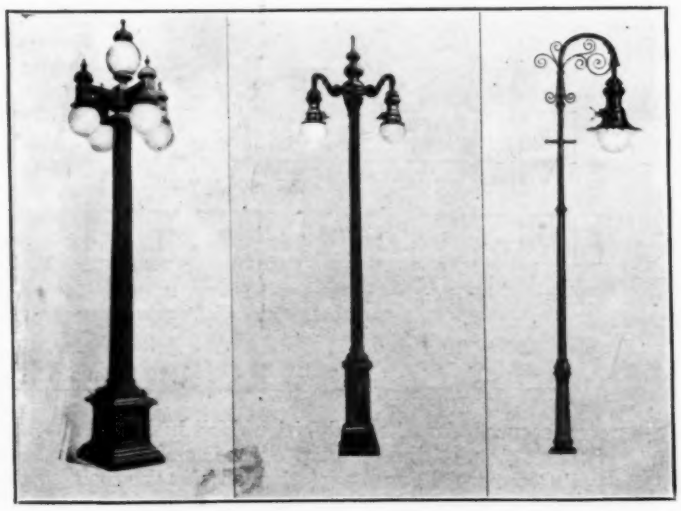
It is a well-known fact that considerably greater efficiency is obtained with the mantle light than with the old flat flame burner. With but little more than half the gas about two and one-half times the light is secured.

Unfortunately, American municipalities usually space lamps in accordance with their generally small appropriations, rather than, as they should, to get best results. In America gas street lamps are generally spaced from one to two hundred feet apart; in European cities about sixty-five feet apart, usually one hundred feet diagonally apart measured from lamp to lamp. When the inverted gas burner came into general use for indoor illumination, its economy was so pronounced in comparison with the upright burner, that both manufacturers and municipalities began looking into its application for street lighting. One mantle of the inverted type does not look well in a Boulevard lamp, and it was in this lamp that all the early experiments were made, so a burner was designed to suspend two mantles like illustration Fig. 3.

Fig. 3.—Two Mantle Inverted Unit.

This burner consumes about five and three quarters cubic feet of manufactured gas per hour, and develops 182 mean lower hemispherical candle power.

Following the introduction of the inverted gas burner and its application in the "Boulevard Type Lamp," experiments were made and lamps designed of various mantle units of somewhat ornamental appearance. One of the first of such types is shown in Fig. 4.



Figs. 6, 5 and 4.—Ornamental Standards.

The post or standard was known as the "Boulevard Post" the same name as the lamp illustrated in Figs. 2 and 3. On this post

was suspended a 3-mantle gas arc lamp with reflector shade, which developed 400-candle power (mean lower hemispherical) on a consumption of 11 cubic feet of manufactured gas per hour.

A somewhat more ornamental post was next constructed which suspended two, 3-mantle gas arc lamps equipped with alabaster globes and clear outer skirts, shown in Fig. 5.

The candle-power of these lamps was considerably lower than of the lamp shown in Fig. 4, as the latter was fitted with reflecting shade and clear globe, while lamp Fig. 5 had clear outer skirts and alabaster globes. The gas consumption was the same per lamp.

Another style of standard and lamp is shown in Fig. 6. This may be built for three or five lamps, each containing one or two mantles as desired.

Fig. 7.—Gas Lighted Street.

With all lamps lighted, this standard with two mantles to each lamp, consumes twenty-two cubic feet of natural gas or about thirty-seven cubic feet of manufactured gas per hour; candle-power not known but claimed to be 1000 with all mantles lighted.

Fig. 7 is night view of a street lighted with the lamp and standard illustrated in Fig. 6.

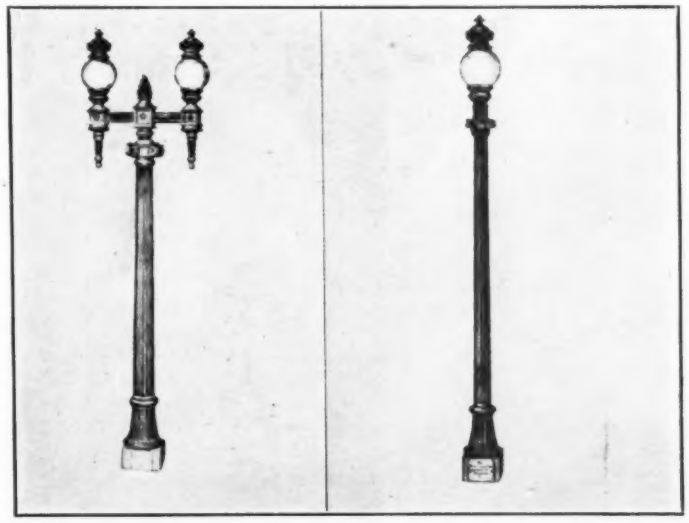


Fig. 9. Fig. 8.

Fig. 8 illustrates lamp used between street intersections; and Fig. 9, those at the intersections in Figs. 10 and 11 following.

Fig. 10.

The lighting unit in these lamps consists of an inverted fixture with two mantles. On a manufactured gas consumption of 6 cubic feet per hour each lamp produces 150-candle power (mean lower hemispherical). With natural gas, considerably higher candle power is obtained.

Fig. 11.

The "Sixth City," not wishing to be outdone by any of its neighbors, has, through its energetic and ingenious lighting superintendent, designed and is now using the ornamental lamp shown on Fig. 12, in its East Side Parks and Boulevards.

Fig. 12.—A Cleveland Standard.

All these lamps are equipped with an automatic clock attachment that lights the main burners from a constantly burning pilot light, and extinguishes the lamp in the morning. Each lamp consumes 4.7 cubic feet of natural gas per hour and develops about 135 candle-power.

Fig. 13 shows an automatic pressure valve recently designed, but not yet proven in actual use, that is intended to displace the automatic clock device now used for lighting and extinguishing lamps. It is operated by increasing and decreasing the gas pressure in the main supplying the lamps.

Fig. 14 shows the post and lantern equipment used at the Panama-Pacific International Exposition for lighting the "Zone." These lamps are equipped with mercury valve distance control, and posts are located 75 feet apart. The gas supplied through exposition grounds is conveyed in the mains at 30 pounds pressure, and a by-pass cock and a governor to reduce pressure to 5 inches water column is installed in the box seen at base of post. The lamps are covered by specially designed lanterns of various types, consisting of a wooden frame covered with either pink or orange canvas; and

at night the illuminating effect is very beautiful. All entrances and exits to the exposition grounds are gas lighted; the entrances with three and five mantle arcs, the exits with one mantle arcs.

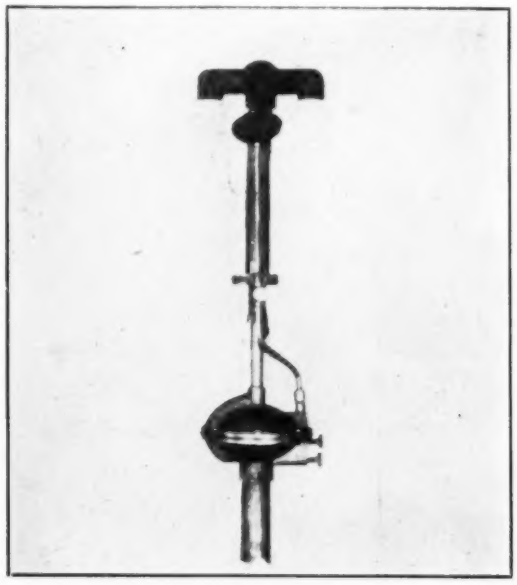


Fig. 13.—Wave Pressure Lighter.

The next picture, Fig. 15, shows a night view of the "Zone" from Fillmore street, looking eastward. Note the different shapes and designs of lanterns on the gas lamps.

Fig. 14.—Ornamental Arc Lighting in the "Zone"

In the State and Foreign Area of the exposition, the street lighting is with high pressure gas lamps. Figure No. 16 shows the design of standard and lamp. The globe used at the exposition is 20-inches, while that in the picture is 18 inches, and the ventilator is somewhat different in design.

Fig. 15.—The "Zone" at Night.

Fig.—16.—Another Exposition Unit.

The lamps are mounted on posts 18 feet high; gas is delivered to lamp at three pounds pressure; and the mean lower hemispherical candle-power is 1160, with gas consumption 24.30 cubic feet of manufactured gas per hour.

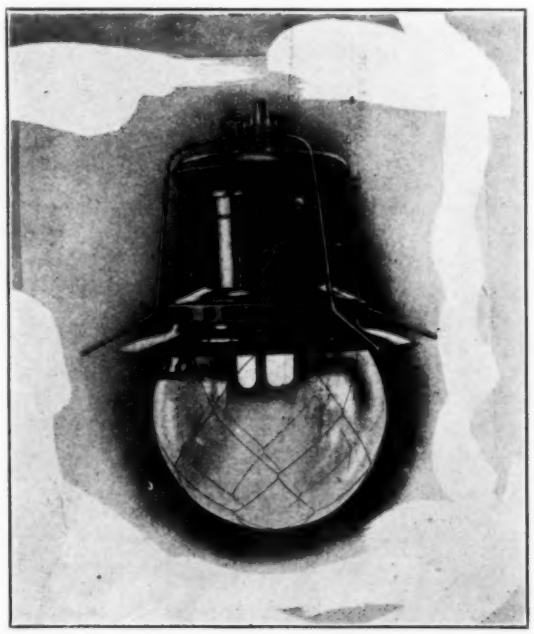


Fig. 17.—Three-Mantle High Pressure Arcs.

Fig. 17 pictures a foreign three-mantle high pressure arc lamp that developes a candle power of 4,000 on a natural gas consumption of 35 cubic feet per hour at 2 pounds pressure. On a test we made on this lamp from March 4th to 16th of this year, burning 160 hours during this period, but one mantle was replaced for breakage, no globes or other parts being renewed.

In street illumination abroad this lamp is hung in the center of street about 30 feet from the ground; with flexible connections allowing it to be drawn to the side and lowered for cleaning.

There are many other styles of standards and lamps in addition to those shown, but I have tried to select most of the kinds in somewhat general use.

The United States has been slow to adopt high pressure gas street lighting, and it will probably be many years before it becomes generally used, but time will, here as abroad, see it in much more common use than now. The excellent quality of light, high candle-power and economy of operation will be recognized, and when it is, our fellow electric members of the "Society" will have to look to their laurels, else the "gas man will get you if you don't watch out."

Advertising Influence of Public Service Employees.

[By R. O. JASPERSON, before the Wisconsin Gas Association.]

In considering the subject of the advertising influence of public service employees we come face to face with some of the fundamental relationships between employer and employee, and the problems of how to secure good employees, how to get better service from the employees we already have, how to encourage greater loyalty, more intelligence and more genuine interest in the aims and policies of the company. We are reminded that the most effective organization is a compact machine in which the energy, ideals and purposes of the dominating head are transmitted easily and effectively down to the humblest member of the organization. How to bring about such cohesion, such unity of purpose, is a subject hardly within the scope of this paper. My purpose shall be to point out as simply as possible some of the effects of inefficiency, especially the inefficiency in employees that results disadvantageously to the company from an advertising standpoint.

True efficiency in an employee is that quality that makes him a positive factor in all his relations with the company by which he is employed, as well as with the public that he serves. The clerk at the application desk may be a hundred per cent. man for accuracy, punctuality, personal appearance, general intelligence, etc., but if he exerts a negative influence upon the individuals comprising the public with whom he comes in contact, he is a liability rather than an asset to his employer. If, in the course of his duties, his work if 90 per cent office detail in which he is perfect, and ten per cent. contact with the public in which he is deficient, that ten per cent. outweighs the ninety per cent. and he is not a desirable employee. I have in mind a certain employee in whom utmost confidence is placed by his employer. He is of the highest integrity, punctual, painstaking, earnest in his devotion to his work and his employer, yet by some strange obliquity he fails to realize that he exerts a repellant influence upon his employer's customers. Customers are leaving, some of them regretfully, most of them indignantly, not because the employer is not rendering the service, or giving full value for the money, but solely because this employee's lack of tact, his personality and lack of understanding of the subtle influence of courtesy is driving them elsewhere. This man is a bad advertisement for his employer. If conditions were reversed—the employer deficient in quality of his service, lacking in appreciation of the value of friendly relationship with the public, without pleasing personality, etc., and the employee the understanding one, it might still be possible for the employee to hold trade by sheer force of his own personality. So we see wherein advertising influence constitutes one of the important elements in efficiency of employees.

Now what is advertising? Reducing a business transaction to its elements, there must be a buyer, a seller and the thing sold. Less tangible but hardly less important is the means used to make the buyer acquainted with the fact that the seller has something he wishes to sell. This element is called advertising. Advertising, to many, means merely printed matter, when as a matter of fact, printed matter is only one of many forms of advertising.

In the seclusion of the laboratory there is perfected a new type of lamp, let us say, one that will work wonders in the direction of providing greater illumination, of better quality at lower cost than anything heretofore put on the market. No one in the world knows it until the inventor tells a friend what he has accompiished. This friend knows a man who is looking for better light at less cost, and he tells him. A sale is made. We have the buyer, the seller, the thing sold, and we have also the advertising that brought about the sale.

When the seller disposed of his lamp, it was agreed that the sale should include the installation of the lamp. The inventor had an assistant who was sent to carry out this part of the agreement. Suppose that the seller was a man of greatest probity and integrity, and that his lamp was actually as represented, and that the buyer really needed and wanted the lamp. But the assistant—what of him? He walked into the buyer's place of business and tracked the floor with mud. He left marks of his black hand upon white ceilings, or perhaps dropped a monkey wrench into a machine and wrecked it. Of course no gas company or electric company would have such an employee, yet it is not difficult to imagine such an employee. The buyer might submit to this inefficiency, but if the bungling employee were to add to the wrongs already perpetrated by arguing the matter, no matter how much he needed the lamp or wanted it, the sale, which promises up that point to be a good transaction, would be absolutely spoiled. But for the sake of example, suppose the buyer keeps the lamp in spite of everything, what would be his answer if another prospect were referred to him for information? The answer is so obvious I need not tell you. The assistant not only spoiled the sale of a second lamp, but made any further sale of lamps to buyer No. 1 out of the question.

If we transpose the characters of this little story we have the public service corporation as the man who has the lamp to sell; the public is the buyer; the advertising is the man who told his friend about the lamp; and the employee of the public service corporation is the assistant. In this instance the assistant is pictured in his worst possible aspect, and it is gratifying that in these times the assistant is being made aware of the important part he plays in the business of serving the public.

There has never been a time, perhaps, when so much attention has been paid to impressing upon employees of public service corporations the necessity for maintaining cordial relations between the company and the public. It is one of the signs of the time, a sign that public service corporations realize more fully their duty and responsibility to the public. Much has been said and written about training the employee who comes in contact with the public, the clerk at the desk who takes orders for turning on and off the gas or current, those who sell goods in our sales rooms, meter readers and other employees who visit the homes of our customers; but it should not be overlooked that the employees generally, even those never seen by the public, are real factors in advertising your company. This means that an organization which lacks that highly important element of loyalty is not only a distinct loss to the company as a favorable advertising force, but even may be worse than negative, a real menace.

There are employees who speak deprecatingly of the service rendered by their company, those who when out among friends and acquaintances maintain an attitude of dissatisfaction by belittling its aims and efforts, saying things that reflect upon the efficiency of the organization, magnifying shortcomings and continually giving off exactly the reverse of that spirit of loyalty which is a corporation's greatest asset. How to fill every employe's heart with real enthusiasm and loyalty to his employer, is a problem worthy of most careful thought. It brings us back to the very beginning of the employe's connection with the corporation, for there it is that potential disturbers and trouble makers should be eliminated.

At the National Commercial Gas Association Convention in Minneapolis, a paper was read on "Selecting Employees," and much thought was given to the consideration of methods of selecting suitable material from which to recruit the various departments. Keen insight, a practical understanding of human nature, ability to read character at sight, are all necessary when selecting employees for positions in a corporation, for, with the difficulties attending the supervision of a large number of employees, a tendency to disloyalty often gets an opportunity to develop before it can be rooted out.

It is safe to say that the complaint department is one of the most important, from an advertising standpoint, in any public service corporation. The telephone, with all its wonderful convenience, is nevertheless the source of a company's troubles, especially if the clerks who come in contact with the public in this way are poorly trained. I need not describe the state of mind of a customer who takes advantage of the company's courteous invitation to register his complaints, and after passing through the trying experiences that sometimes attend before he even succeeds in reaching the company's private exchange operator, finds himself shunted from clerk to clerk, from department to department, meeting with indifference when he feels his complaint is worthy of careful and immediate attention. The up-to-date manager takes pains to get first hand knowledge of how clerks who answer the telephone perform their work, and there is sometimes revealed a condition that may account for public antagonism aroused in spite of every precaution to render good service. The ideal telephone clerk is one who has perfect control of his temper, who is uniformly courteous and at the same time makes the customer feel that his complaint meets with proper interest. The customer who tells his friends about the careful attention his complaint received is a better advertisement than hundreds of dollars worth of newspaper space.

With all due regard for the effectiveness of the printed advertisement as a means of getting business and holding old business, the service rendered by a corporation does more to advertise it than any other one thing. We cannot dispense with the printed advertisement. It tells the public of the things we have to sell, it explains policies, and it keeps the name of the company before the public. But a friendly feeling on the part of the public can best

(*Continued on page 362.*)

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NEW YORK, MONDAY, JUNE 7, 1915.

Panama-Pacific International Exposition Establishes a World's Record for Conventions and Congresses

Eight hundred and twenty-two conventions and congresses, covering the activities of the world along industrial, commercial, professional and scientific lines, will meet in San Francisco in connection with the Panama-Pacific International Exposition during the 288 days of its existence.

This is more than double the number secured by any previous World's Exposition, and to secure them, practically all organizations of importance in the civilized nations of the world were thoroughly canvassed by James A. Barr, Exposition Director of Congresses.

A careful estimate places the number of delegates and visitors that will be brought to California by these conventions at 600,000 in round numbers, and there will be an average of nine conventions a day throughout the entire period. But few days are blank, and on certain days during the summer months as many as 30 or 40 meetings of various kinds will be held.

Following is the classification:

National Conventions	525
International Congresses	57
Pacific Coast Conventions	68
California Conventions	172
	822

Several important departures from ordinary methods of handling conventions mark the work of the Exposition: First, the grouping plan is a splendid scheme for the convenience of hundreds of thousands of delegates, and one never attempted before at any exposition. In a large measure, the 822 conventions have been grouped by subjects, which means that those having to do with related lines of work have, as far as possible, been placed in the same week or month. Visitors interested in any specific line of investigation may thus attend a great many gatherings on that subject within a fortnight, saving the expense of another trip. Among the subjects grouped are those relating to education, social service, science, medicine and hygiene, economics, labor, engineering, agriculture, live stock, press, insurance, history, pharmacy and religion.

For instance, during June there are 24 conventions on medicine and related topics, beginning with the convention of the American Society of Tropical Medicine, June 14–16, including the international and national nurses' associations with 9,000 delegates, and culminating with the sessions of the American Medical Association, June 21 to 26. The great educational period comes in August, when 129 educational conventions will convene. The Engineering Congresses are in September, including the American Gas Institute meeting, the International Gas Congress, a National Commercial Conference, and meeting of the Pacific Coast Gas Association.

The advance survey is another work of convenience and benefit. A recognized weakness at most expositions has been that members of conventions and congresses have received no advance information in definite form, concerning the exhibits illustrating their respective lines of interest. At the suggestion of the Director of Congresses, various educational, scientific and technical bodies meeting during the convention period will have a committee of members, all experts, make a survey of the exhibits in which the members of the organization will be most interested. This survey, containing names, places and maps illustrating location, will be distributed to members in advance of the dates selected for such conventions or congresses. In this way the delegates and visitors will be able to visit immediately, and with little difficulty, those exhibits in which they are specially interested, thus making the exposition a working laboratory in relation to the gatherings.

[Special Report to the JOURNAL.]

Iowa District Gas Association Meeting.

CLINTON, IA., May 28th, 1915.

The eleventh annual meeting of the Iowa District Gas Association convened on Wednesday morning, in Lafayette Inn, with pleasant surroundings and good attendance. The session was opened by an address of welcome by Mayor Hansen, who spoke in praise of present day corporation management. The response was by H. B. Maynard, and he talked along similar lines with particular stress on the need of absolute square dealing with the public. Then came matters of routine business, and the address by President Thomas Crawford. The latter was a general review of the year's happenings in the gas industry, with special reference to industrial uses, by-product demands, coal gas plant building and the advantages of joint meetings of gas and electrical organization in local conventions.

Mr. Ingwersen's paper on "The Gas Company from the Consumer's Point of View" was then taken up, and consumed the balance of the morning session.

The afternoon session was given over to a symposium of short papers on "How to Spend Money to Make Money in the Gas Business." Three papers were presented, by H. C. Blackwell of Davenport, H. B. Maynard of Waterloo, and G. W. Clabaugh, of Omaha, Neb., all of them advocating liberality, and Mr. Maynard particularly recommending newspaper advertising.

The banquet Wednesday evening at 9 o'clock was a Smoker and Dutch Lunch, thoroughly enjoyed by all in attendance. Short addresses in lighter vein were made by the various prominent gas men at the board, and it was rated a great success.

Thursday morning's session was opened at 10 o'clock, and Mr. Soper's paper on "Iceless Refrigeration by Gas" was the first formal business. He gave a technical description of the construction, operation and theoretical efficiency of small domestic absorption machines, and the discussion brought out some interesting cost figures and views as to the practicability of the process.

Mr. G. W. Clabaugh then presented a eulogy of the late Isaac Battin, one of the seniors of the Association.

Mr. Andrew Cooke's paper on "Commissions, and the Financing of Gas Properties" occupied the time until lunch time, and this was served by Division No. 4 Ladies' Aid Society, making a pleasant break in the routine of the convention.

"Industrial Appliances," by W. L. Powers, was the first paper in the afternoon, and was a description of the ways of obtaining and developing such business in cities of from 10,000 to 40,000 population, where gas can be sold at $1 per thousand.

Mr. Blackwell, Chairman of the Committee in Joint Public Utility Meetings, offered a resolution that the date and place of next meeting be left to the Council, they to communicate with the executive committees of the State electric and State railway associations with the view to holding a joint meeting next year.

The report of the Standing Committee on "Manufacturing" was presented by Chairman Hauschildt.

The report of the Nominating Committee, H. B. Maynard, Chairman, recommended these officers:

President, A. L. English, Council Bluffs, Ia.
First Vice-President, G. I. Vincent, Des Moines, Ia.
Second Vice-President, A. W. Borden, Beatrice, Neb.
Secretary-Treasurer, T. B. Genay, Des Moines, Ia.
Council, 2 years, Charles Smith, Yankton, So. Dak.; E. W. Eustace, Dubuque, Ia.; Thomas Rice, Beatrice, Neb.
Affiliated Representative to American Gas Institute, Thomas Crawford, Clinton, Ia.

All of these were unanimously elected.

Friday morning's session disposed of the remaining business in this order: Paper by F. S. Dewey on "Industrial Gas Problems"; report of Standing Committee on "New Business", C. W. Lockwood, chairman; report of Standing Committee on "Distribution", by A. W. Borden, chairman.

Some final resolutions were then presented, and adjournment taken; and the ladies of St. Agnes' Guild served the closing lunch. —N. A. Y.

[Special Telegraphic Report.]

MEETING OF SOUTHERN GAS ASSOCIATION AT ISLE OF PALMS.

ISLE OF PALMS HOTEL, June 4, 1915.
(Via Charleston, S. C.)

The seventh annual meeting Southern Gas Association opened Wednesday morning at this beautiful resort, with practically the entire membership in attendance, the largest gathering of gas men in the history of the association, and many representatives of appliance manufacturers were also present.

The ways were well greased and the formal business promptly launched. First was the Address of Welcome by His Honor, Mayor Grace and the response by Mr. Hoyt. Then came the routine reports; the very interesting address of President DeFreese, and E. D. Brewer's timely paper on "The Future of Gas Lighting." These, with the discussions and a short intermission for lunch, filled the early afternoon, and left time for some surf bathing, a good dinner and the informal dance at 8:30.

Thursday session was started with Mr. McKee's paper on "The Distilation of Water," certainly the last word on the use of gas for this purpose. "The Automatic Operation of a Water Gas Set," by C. F. Zeek, was a revelation to his hearers, and aroused wonderful interest and discussion. Then came some committee appointments; and the bulk of the afternoon was given over to boat trips and other entertainments. Among the latter was a "badger fight," in which J. B. Smith, of Winston-Salem, N. C., came off victor; and it is reported that his middle name is now Badger. The banquet for the men and the ladies dinner party were both greatly enjoyed, and the delegates are loud in their praise of the perfect appointments of Charleston and the Isle of Palms, and of the great interest shown by the Charleston Consolidated Railway and Lighting Company in seeing that everyone had a good time.

A formal resolution was passed expressing approval of President Wilson's course in the present crisis, and confidence in his judgment. Another motion expressed the thanks of the Association to the AMERICAN GAS LIGHT JOURNAL for its interest and courtesies extended.

Friday's session will see the election of officers, in which great interest is being taken, and the completion of the program, including the paper by Mr. Bowlin on "The Use of the Prepayment Meter in the South," and that by Mr. Nicaloi on "Municipal Lighting in the South."

At night is the Southern Gas Association Hop; and Saturday morning there will be a trolley trip seeing Charleston—and then for home.

Beyond question this is the greatest meeting ever held in this section, and the Association and its officers are to be congratulated on the splendid showing.—W. E. R.

N. C. G. A. MID-YEAR CONFERENCE.

New York, June 10 and 11th, 1915.

Every member of the Association is invited to attend and bring his friends. Gas companies and manufacturers of gas appliances are also urged to send their employees to the Conference. The Mid-Year meeting is intended to bridge the gap between the annual meetings. It helps keep up interest during the year and enables men to attend who often cannot be present at the annual meeting.

There was an attendance of over 300 members and guests at the Conference last June, and the program for this year's meeting should certainly attract a large attendance.

The morning of June 10th will be given over to meetings of the various committees, as follows:

Committee Meetings—Thursday Morning.

Committee.	Place.	Time.
Board of Directors	61 Broadway—Room 2929	11:30 A.M.
Accounting	61 Broadway—Room 2928	10:00 A.M.
Board of Educational Control	61 Broadway—Room 2929	9:00 A.M.
Central Development Bureau.		
Development of Industrial Fuel	61 Broadway—Room 2903	9:30 A.M.
Differential Rates	61 Broadway—Room 2927	10:30 A.M.
Heating, Ventilating and Refrigeration	61 Broadway—Room 14 U. G. & E. Co	10:00 A.M.
Illumination / Local Section	101 Park ave.—Office of W. W. Barnes.	
Manufacturers' Section	Hotel McAlpin—Evening of June 9th.	
Papers	61 Broadway—Room 2927	9:00 A.M.
Publicity / Salesman's Hand-Book	61 Broadway—Room 2906	10:00 A.M.

First Session—Auditorium, 130 East 15th St., New York—Thursday Afternoon, 2 P.M.—Merchandising Session.

Introduction—President Harvey B. McLean.

Address—Mr. George B. Cortelyou, President Consolidated Gas Company of New York.

Discussion—The topic: Relations Between the Gas Company and the Dealer.

Thursday evening, at 7 o'clock, at Hotel McAlpin, Broadway and 34th street, dinner and reception to the Officers and Directors of the Association, under the auspices of the New York "Gas Meeters." Informal dress; dinner tickets $2.50.

Friday Morning, 10:00 A.M.—Publicity Session.

Co-Operative Advertising Service for Gas Companies—Thos. R. Elcock, Jr.

What is Your Show Window Worth to Your Company?—L. C Heiss.

Proper Illumination of Gas Company Show Rooms and Windows and Their Publicity Value—W. W. Barnes.

The Value of Free Publicity and How It May Be Secured.—W F. O'Donnell.

Harmful Publicity and Its Correction—R. ff. Pierce.

Friday Afternoon, 2:00 P.M.—Educational Session.

Opening Address—Dr. Lee Galloway, Director of N. C. G. A. Educational Work.

Should the Education of the Gas Company Employee be a Compulsory Matter—J. P. Hanlan.

Should the Fitters and Shop Men Have Prepared for Them Special Courses of Study, and of What Should Such Courses Consist?

Discussion on the above papers.

Closing remarks.

(*Continued from page 359.*)

Advertising Influence of Public Service Employees.

be cultivated by efficiency of service. And this means efficient employees. Whenever service is rendered an employee makes his appearance somewhere in the transaction. In a telephone company, it is the exchange operator, the crew that installs the telephone, the man who brings the contract to you to be signed, the man who comes to extract the nickles from your pay telephone. In the street railway company it is the man on the platform, the clerical force, the complaint department, the claim department, etc. In the electric light and gas business it is the installing crew, the meter readers, inspectors, clerks at telephones. In fact the points of contact with the public are so numerous that it is not an exaggeration to say that every employee of a public service corporation at some time or other in the course of his work represents the corporation. For the moment, the employee, no matter how humble may be his position, is the company and his attitude becomes the attitude of the company employing him.

The necessity for properly impressing upon employes their responsibilities in this direction is not new propoganda. Corporations realize this today more than ever. It is reiterated merely to bring into sharper relief the thought that advertising is not merely printed matter, but is the influence that affects the thought and action of any individual comprising the public. The gentlemanly meter reader, the intelligent clerk, the tactful telephone operator, the well informed salesman, the even tempered complaint man, all serve to create in the minds of those with whom they come in contact an impression that leads to confidence in the printed messages of the company, and confidence that future service will be satisfactory and all that could be desired.

There are employees instinctively courteous and comprehending of the subtle influence exerted by such factors as tone of voice, manner of speaking, tact; yet even these need the encouragement of example and frequent admonition. There are other employees not so endowed by nature and who, in spite of most conscientious training, are at best just passive if not positively negative in their relationship with the public. The best is none to good when we consider the influence exerted upon those whom we seek to serve.

A company is judged by its employees, its buildings, the appearence of its equipment and plant, printed advertisements, the taste or lack of taste that characterizes its salesrooms, general offices, etc., all of which are the work of employees, and have a subtle influence in shaping the public's estimate of a company. After all it is the man the company sends to its customers who make the most pronounced impression. Every employee is in fact a representative, and if he fails to properly represent his employer by falling short of the mark established by those charged with the administration of the affairs of the company he is a poor advertisement and his advertising influence is bad.

To promote an understanding of the employee's influence is worthy of our best efforts. The company that desires to maintain friendly relations with the public will first infuse its organization with a spirit of loyalty to its welfare. The loyal employee treats each individual with whom he comes in contact as if he (the employee) were the company, and as if the effects of his dealings with the public meant dollars and cents to himself. Therefore, one way to get satisfied customers is to have satisfied employees. The employee who is proud of his company and of his position, who feels that his particular job contributes to the success of the whole enterprise, who is made to feel that the company has a real interest in his welfare, is pretty apt to be a satisfied employee.

The company that has an organization of faithful efficient employees is laying up a treasure of that mysterious intangible asset that defies appraisal in dollars and cents, called "Good Will," without which it would be difficult for any enterprise to exist.

Iron in Water.

Half a part per million of iron in water is detectable by taste, and more than 4 or 5 parts makes it unpalatable. In some mineral springs iron is the constituent of medicinal value, but ordinarily it is undesirable. More than 2.5 parts per million in water used for laundering stains the clothes. Iron is harmful in water used for steaming, for it is in equilibrium with acids which inside the boiler become dissociated, with the result that the free acids corrode the boiler plates; but the iron carried in solution by most water is so small that damage to steam boilers generally is little.

Carbonization in New England.

Being portions of the Discussion on the paper by MR. C.W. HUNTER, before the New England Association of Gas Engineers.

MR. NETTLETON.—This paper gives a splendid description of a remarkable plant. The results obtained are exceedingly good, and I congratulate the Fall River Company on their work, and Mr. Hunter on his paper. I would like to ask, how they take care of the hot coke without having it burn up before putting it into the generators; and to call attention, it may be characteristic of all intermittents, to the weight of the coke. Mr. Hunter states that the coke weighs 32 pounds per cubic foot, which is very close to 50 pounds per bushel of 2,747 cubic inches. The coke produced in the continuous verticals at Derby, including the breeze as it comes from the retorts, is 34.5 pounds per bushel. I presume this is due to the difference in the process, as I don't suppose we are making lighter coke at Derby than they do elsewhere in continuous verticals. Referring to the use of Westmoreland coal (from January 3 to January 24), Mr, Hunter says: "Ammonia per 2,240 pounds of coal, as charged, 7.22 pounds." Was that the ammonia produced in the hydraulic main and the quantity determined by its presence in the gas, or was it the ammonia collected in the water and concentrated and sold? If the former, would he tell us the quantity actually sold?

The New Haven Company are to build a vertical retort house which will be started this spring. The retorts will be slots, of the Woodhall-Duckham process, the same as at Derby, on which system I am still enthusiastic. It is a comparatively easy method of making coal gas, but it does not run as easily as I had hoped. It requires attention, and there are some questions that puzzle us. One is: Why does the candle power vary when apparently conditions are precisely the same? At Fall River they seem to be able to get regular and good candle power.

MR. STILES.—I would be glad to give a few of our results:

The Glover-West type of vertical retorts installed at Fitchburg, Mass., started to make gas January 11, 1912. A year later upon the completion of a second bench we were able to make straight coal gas, shutting off retorts when our output dropped; and any large increases in output were taken care of by making water gas.

Before gas oil went up in price we were able to start making straight coal gas, eliminating the extra expense on our water gas and giving our consumers a gas higher in heat units than the mixture would have been had we been operating one bench of retorts and making the balance water gas. In warm weather we had no trouble to maintain 16 candle power, and when cold weather set in we put an oil pipe in one of the retorts and by the use of .2 of a gallon per thousand increased the candle power one candle, giving about 17 candle power off the bench.

The house enclosing our vertical retorts is a steel structure covered with corrugated iron. In this construction there are more I beams and channel irons to catch dirt than in a brick building, but only a small amount of dirt accumulates in comparison with operating inclines or horizontal benches. As our operation is continuous and no water is used to quench our coke, we eliminate part of the smoke and steam present when charges are dropped from other types not thoroughly carbonized, and water applied to the coke to quench it. The operator of the bench is not exposed to red hot coke during the operation nor to gas and fire while charging retorts. We let our retorts down for carbon after running from 5 to 6 weeks and this is the only time we have to inspect the inside of the retorts. Removing the carbon is as simple as on an inclined retort and scurfing is done by the regular operator. The extracting worm on the bottom mouthpiece splits so that we can work from the bottom as well as from the top.

On some types of benches cracks open up in the brickwork. This means that you are taking in air and losing control of the heats. We are troubled very little with cracks in our brick work, the benches running for months without mason work being required. Our bench is constructed so that we are able to operate 2, 4, 6 or 8 retorts, the combustion taking place on each division of two retorts, and at 10 different levels in each section. Considering producer gas, secondary air and waste gas dampers, there seem many, but once set, the operator can look through the inspection holes leading to the combustion chambers where gas and air come together, and know what is taking place on the bench. We operate the bench with two ten hour shifts and one four hour shift, the operator removing all his coke and with a helper cleaning the fires.

We are not forcing our benches to capacity, as we think it better to run the whole outfit at a moderate speed, instead of two thirds to capacity and have the other section idle. During the

summer months, with what holder capacity we have, we are able to decarbonize two retorts at a time, in most all cases on Sunday, to be ready to operate the sixteen retorts when our output picks up. We obtain simplicity of operation, cleanliness and good results.

The following are figures on costs: In December, 1914, we made 12,547,000 (of this 1,215,000 was water gas) costing $3,966.00; December, 1913, we made 12,056,000 (6,022,000 was water gas) costing $4,608.00; January, 1914, we made 11,806,000 (482,000 water gas), costing $3,592.00; in 1913, the corresponding month, we made 11,498,000 (4,531,000 water gas), costing $4,750.00. This year our oil cost $.055 against $.032 a year ago, and by making a larger percentage of coal gas we show a net saving of $642 in December, 1914, and $1,158 in January, 1915. These figures are a fair comparison of what we have been doing since we started to use our coal gas capacity.

As compared with Springfield and Malden, operating inclines, (Springfield paying $4 for coal, Malden $4.25 and Fitchburg $4.55) the residuals of Springfield netting $.26, Malden $.25 and Fitchburg $.23, we can, with the vertical retorts at Fitchburg, make gas practically $.02 a thousand cheaper than Springfield and $.025 cheaper than Malden.

MR. DRAKE.—There are one or two questions I would like to ask Mr. Hunter. Referring to the secondary air and primary mixture passed through Venturi meters, how long, after making a change on either primary or secondary, does it take to note that change in increase or decrease in the heats? Regarding the coke handling plant, in which we at Lynn are interested, what is the capacity per hour and the percentage of breeze made? Regarding the purifying boxes, which are new in this section, how long does it take to fill and discharge them, how many men are required, and is there a drop in temperature through the boxes during cold weather?

I would like to ask Mr. Stiles if the costs he gave were in the holder.

The inclines at Lynn were installed in 1903, and the plant started in June. We have run the whole gamut of good, bad and indifferent operation, and have obtained as high as 20,000 per retort and as low as 14,000, but the results for the past 15 months are fair averages of what has been done.

The Lynn installation consists of 10 benches of 9's in two stacks of 5 each. Retorts are 18 feet long; 16″ x 23″ top and 16″ x 25″ bottom. Furnaces are of outside regenerative type 3′-0″ x 4′-7½″ x 7′-0″. Under five of the benches we have rebuilt the furnaces, returning the flue gases under the grates, making a larger furnace, 5′ x 5′ x 7′-2″. The original benches were of imported German material, and we obtained a life of from 4 to 5 years, then renewing the retorts from the lower retort saddle block up. Last year we renewed two benches from the discharging floor up, using silica sectional retorts and doing away with all shifting tile, which was quite a departure from the old style bench, and a long step in the right direction, for it simplifies the bench operation. Another change was made in this renewal; the retort, instead of being tapered, was made straight, 16″ x 25″ the entire length. These benches have been in operation since last May giving good results, although in the next refilling we will make other changes to still further improve our results. In regard to the table appended; all gas is corrected for temperature, all coal is in gross tons, and the NH_3 results are taken from our sales to the company who purchase our entire concentrate. The candle power is obtained on a 100″ closed bar photometer with an Argand D burner. Regarding the "Make per Man per 24 Hours," our stokers work but 8 hours per day. When we run 9 benches we must have 8 men per shift; with 8 benches, 7 men per shift; with 7 benches, 6 men per shift, with extra men from outside to dump the tar drums. I have included the retort house foreman.

Results from October 1, 1913 to January 1, 1915:

Total gas made, 15 months	586,157,417
Total pounds coal carbonized	112,373,440
Total gross tons coal carbonized	50,167
Average yield per pound	5.21
" candle power	16.62
" candle feet	86.64
" retort yield	18,137
" pounds coal charged per retort	869
" make per gross ton	11,684
Make per bench per 24 hours	156,690
Make per man per 24 hours	56,526
Average B. T. U	612
" specific gravity	.407
Gallons tar per gross ton	12.4
Ounce gallons NH_3 per gross ton	210.4

PRESIDENT LEARNED.—There is an installation at Hartford almost a duplicate of the one at Fall River. Mr. Perkins expected to be with us; I am sorry that he is not here. Mr. Taussig might be willing to say something about the Hartford installation.

MR. TAUSSIG.—When the Hartford and Fall River plants were built we had had no experience with anything but clay material for vertical retorts. A vertical retort has a great load on the material, and the refractoriness of clay is reduced considerably by the load. We were forced, when we built the retorts, to look for a clay material of the very highest quality. The manufacturers in this country had no experience with this type of work, and we were forced to buy material from Stettin, Germany. A man with a horizontal house would not accept a plant of, say, through horizontals with clay retorts. Therefore, we have something to look forward to when we have had the opportunity to try silica material in our retorts. The retorts at Hartford and Fall River are run "under wraps." We have to watch the heats carefully. There is no clay material made that will stand the temperature that silica will under load, and yet it would have been a great departure on our part, these two plants being the first built outside of our own company, in experimenting with silica material. We are building a little plant at Northern Liberties, Philadelphia, refilling two benches with silica, and look forward with interest to their behavior in operation. It may not do much in improving efficiencies as far as residuals or the quantity of gas from a pound of coal are concerned, but it will enable us to let the benches go to their fullest capacity without being afraid of carrying too high heats. We hope by next year to be able to give you some interesting data on what silica has done for vertical retorts. I believe a vertical of any type, especially our type, requires silica.

I understand Hartford is running very much the same way as Fall River. They have had some minor troubles with the coke handling machinery. At Hartford we were trying to eliminate the nuisance of quenching, one of the handicaps of any intermittent system, and we were very successful as far as the theoretical part of the work was concerned, and the mechanical difficulties encountered will be overcome. The retort house is girdled with a gravity bucket convevor. The coke is dropped from the retorts hot, fed into the conveyor with a mechanical feeder, and raised without quenching to a height of 40 to 50 feet. From there it was originally dropped on a shaking screen, and the breeze was screened out hot, and the coke quenched on an extension to the screen that acted as a quenching table. This entirely eliminated quenching around the building. The shaking screen and quenching table are being replaced with a riffle screen and short section of DeBrouwer conveyor, and a hot coke bin is provided to catch and store the screened hot coke for use in the producers and water gas sets.

The working results at Hartford are good. The results in our guarantee tests were remarkable, perhaps better than we could hope to obtain on a long run test. I consider the results at Fall River of a great deal more weight. They extend over a long period. The guarantee test was made under ordinary operating conditions of one month. I might answer one of the questions asked Mr. Hunter. The ammonia was all recovered. It was not sold during the test, because the still was not working during the whole time, but was actually collected in tanks, analyzed and weighed accurately and checked by gas analysis. Mr. Hunter sent me a copy of his paper to read over before he sent it in. Remembering Mr. Nettleton's very frank statement of a few years ago, in which he told his troubles, and they sounded much worse than they were and I always felt that Mr. Nettleton was rather depreciating his fine plant—I rather hesitated to ask Mr. Hunter to make any changes in his paper. The term "coal as charged" is different from "coal bought" in the usual sense, because at Fall River coal is weighed in a different way. Coal is weighed as charged in the larry, which means that the actual weight of the coal going into the retorts, plus water, ice, snow and sleet, is weighed and charged against results. Coal stored outdoors in winter or that coming in barges is full of snow and water, and weights don't necessarily represent the coal you pay for; but the coal as it comes to retorts without correction for moisture. It is not always practicable and desirable in the ordinary operation of gas works to take moisture analysis, but when the final summing up comes and the coal pile is squared-up I think Fall River will find plus discrepancies in their pile due to the water weighed in in the coal. Mr. Hunter said about one-sixth of the retorts stuck at Fall River so as to cause some poking. Practically all the hanging up of charges at Fall River is due to the use of wet breeze, used to fill up the unheated portion of the retorts above the bottom mouthpieces. When wet, it condenses tar and is apt to adhere

to the iron mouthpieces. If dry breeze is used this trouble is practically eliminated. At Hartford when they screened their coke hot and used dry breeze the retorts did not stick at the lower mouthpieces. I speak of this because one might get the impression that sticking of coke in the retorts is serious, while most of our former troubles in this direction have been eliminated and if dry breeze is used and the coke well burned off, practically no sticking will occur.

MR. DEHART.—In regard to the Brockton plant, which is the first slot plant, we had so much trouble with clay material that when we started construction we went through the English drawings and revised them so that we could use 10′-0″ of silica in the top of the slot benches. In the Woodall-Duckham system, the highest heat is at the top of the benches, the heats at the bottom hardly going over 2,000° F. The producer and recuperator of this bench are located between each pair of retorts, making a block about 16′-6″ square of four retorts with a total capacity of 250,000 cubic feet per day. To provide for the expansion of silica we had to separate the producer block from the retort blocks, making necessary a special construction of the cross flues which, after careful heating up and testing, would take care of the expansion of the silica. We now feel that at New Haven we could use full 20′-0″ of silica, and this plant will have all silica material, except at the top and bottom, practically the same construction as in the horizontal settings. The expansion vertically will be allowed to take care of itself, providing ample clearance in the coal magazines. To take the horizontal expansion we have experimented in several ways. At Brockton we used pitch to fill the spaces. At Schnectady we used pitch and sawdust, which was expensive and inconvenient. If there was any moisture in the sawdust the tar kettles would prime and it was a considerable nuisance. After careful consideration we decided to use a crinkled paper. Silica expands very quickly, beginning at a temperature of 200 or 300° F. As this heat is not sufficient the paper will not burn, so the crinkle takes the first expansion. When the fires are hot enough to burn the paper it will take care of the final expansion.

We have no figures from Brockton to present, but the plant is running along nicely and is open to inspection to anyone who would like to go down and see the way the coke is handled, the way it is drawn from the retorts and screened dry into the loading bins.

I would like to have Mr. Hunter bring out the amount of supervision in the Fall River plant. We have the labor, men working 11 hours a day, the fireman and the man who looks after the heats on one shift. We need to see that those men do their work, and I would like to get some idea as to how much supervision is required in this model plant.

At Fall River is an arrangement for storing part of the coal so that the retort house is not subjected to weather conditions. Most of the companies in New England have coal sheds, and there has been quite a little discussion as to whether a coal shed was a necessity. This plant has a coal shed sufficient to take care of the coal going into the retort house daily so that the coal is never exposed to the weather except in case of accident. This seems an absolute necessity for uniform results, and I would be very glad if Mr. Hunter would show that this arrangement does provide dry coal for the retort house. It is not necessary to go to Germany for material. We must solve the silica problems in our own designs, which we have done with satisfaction, not only with the slot retort, but with the oval retort, and we now have in use at Derby sectional silica retorts.

THE PRESIDENT.—Will Mr. Shattuck say something in regard to horizontals? You have heard about U. G. I. verticals, Woodall-Duckham and Glover-West verticals. Mr. Shattuck doubtless will say something to us about a modern horizontal plant. I will then throw the meeting open to any gentleman who wants to ask questions of Mr. Hunter.

MR. SHATTUCK.—We have no operating results, as our plant is under construction, but in a year or so I hope to give you the results obtained there. The contractor will give you some details regarding the construction.

MR. CARPENTER.—The plant which is being constructed for Mr. Shattuck is one in which especial consideration has been given to the " Ricon " or silica material. After 10 or 12 years' experience with this material in retort benches much information has been obtained, and in the plant being built at Chester, that information has been digested and special consideration given to the natural elements that cannot be changed. We expect to produce at the start absolutely tight retorts, without anything between the silica shapes for expansion. Every shape is ground on all sides to exact dimension and cemented together in one block, so far as the individual retort is concerned. In order to accomplish this, the whole structure is built inside a gas tight metal casing, with an efficient insulating medium between the metal casing and the silica structure inside.

MR. HINMAN.—The analytical results given by Mr. Hunter show that there is about 5% of air in the gas, and these results are confirmed by the specific gravity. It would be interesting to know where the air came from. The method of analysis, which I assume is the ordinary Hempel analysis, might account for part of the nitrogen, but there is one part of oxygen, and that corresponds with the quantity of nitrogen given. I found at Lowell, in testing gas made from Westmoreland coal, that there was practically no oxygen and only about 1% of nitrogen. If these figures are correct, there is 5% of air that comes from somewhere, probably not from the retorts, because there, there would be no oxygen.

MR. HALL.—I would like to ask if when Mr. Hunter decarbonizes his retorts, does he take three at a time, as they do in Hartford? Does he mean that he decarbonized one retort or three every 7 weeks? Decarbonizing three retorts at a time would shut down a large portion of his plant.

MR. WILLIEN.—In regard to candle power did Mr. Hunter and Mr. Drake use a 6 or 7 inch chimney with a D burner, and was burner new or old D?

MR. DRAKE.—Our candle powers are taken with an Argand D burner and a 7-inch chimney.

MR. KLUMPP.—Did Mr. Stiles include in the coal gas figures the cost of the water gas made. He might add to the value of his remarks if he would include the yield obtained per pound of coal and the quantity of bench fuel used in his setting. Why was it necessary to enrich with oil, was it not possible to get the required candle power, which I take was 16, without enrichment and how was that candle power measured—by what burner?

PRESIDENT LEARNED.—I would like to ask Mr. Fowler to say a word on the old style horizontals from which remarkable results have been obtained.

MR. FOWLER.—The results given in the papers read are far from being equal to those obtained in Worcester according to Mr. Lamson's Detroit paper: and we have here in Massachusetts several installations of horizontal retorts, which I believe to be superior to any in the world, and certainly beat these results from verticals. Some horizontal plants in England are doing very good work compared with verticals there; how much better those horizontals would appear, if they could compare in perfection of installation. and in efficiency of running with our horizontals in Massachusetts. I am surprised that so many installations of verticals are now being erected, and I can only explain it by the fact that there is always a number of people running after false gods. I have no doubt that when the installation Mr. Carpenter described is finished, it will be the acme of carbonizing plants.

MR. KENNEDY.—Is the weight of his coke 32 pounds per cubic foot dry? That is not much heavier than ordinary coke, and yet your coke looks so dense.

MR. HUNTER.—Not completely dry; as found in the yard and sold it contains possibly 5% of moisture. Forty pounds per struck bushel is the actual weight.

The Stone & Webster Engineering Corporation is entirely unbiased in the matter of carbonizing plants, as was demonstrated when we put in the U. G. I. system at Fall River and the Glover West at Pawtucket. It seemed to me that the only way to size up these plants was to compare with what other people are doing, and the best way of finding this out is to first state what we were doing ourselves.

Answering Mr. Nettleton, " How we take care of the hot coke and keep it from burning." As often as necessary, three retorts dropped are taken up the conveyor, without quenching. About two-thirds of the way up is a clapper gate in the bottom of the DeBrouwer conveyor, which opens and drops the coke into the hot coke bin. At the top and bottom of the bin are cast iron sliding valves with faced surfaces, which close off after the hot coke is dropped, preventing air from passing up through the bin. This is only done when we are ready to charge the producer, so that the coke really stays in the bin not more than 30 minutes. We start to charge 10 minutes after the coke is in, and finish possibly 30 or 40 minutes afterwards.

We are bagging coke at Fall River in half bushel bags, which average about 20 pounds to the bag as sold. This is a Massachusetts struck bushel, and is about 32 pounds per cubic foot for the actual weight of the coke as we sell it.

The measurements for ammonia during the test were made by measuring the ammoniacal liquor in the wells, and analyzing it, working out the total contents of ammonia from those measurements. The analysis of the gas for grains of NH_3 was a chemical

check, to see whether we were losing any great amount of ammonia between the hydraulic main and the separator wells. The figures reported for the six months operation are the amount of ammonia actually sold, taking into account the amount on hand at the end of the period. In taking candle power during the test we passed gas from the meter outlet into a mixing tank, and read the candle power every hour of the night and day. During the six months' period the candle power was taken every two hours. The The gas is put into a mixing tank and the average taken in this manner. During the test, in order to determine whether the gas was being cooled in the condensing system to less than 60° F., we took the hydrocarbon dew point, which is reported as 55 degrees. It may be interesting to state that another experiment was made not long ago in checking the hydrocarbon dew point at the outlet to the purifiers to determine whether the condensing system which we have put in at Fall River in any way reduces the vapor content below its proper value, and we were very much gratified to find that in this one test the gas at the outlet of the purifiers was saturated. We expect to make this experiment periodically, and to check up the results in cold weather as well as warm. I would like to ask Mr. Stiles if his costs include maintenance, and if he means "manufacturing cost" by his "cost in the holder."

Possibly about "one hour" is the length of time that a change in the damper setting takes to show up in the benches, but it varies. If the men in charge of the heats find the temperature only slightly high or slightly low, a very small adjustment of the dampers would regulate that, and it would be less than an hour before the effect is felt. The DeBrouwer conveyor and coke screen is rated at 40 tons per hour. Of the Telfer system I am not sure what the capacity is. It has a half ton bucket which travels at the rate of 375 feet a minute, but as we sold most of the coke direct from the bin, I do not remember just what the capacity is. During the test we took six rows of retorts, dropped the coke into the hot coke discharging chute and rolled it out of the south end of the retort house, dumped it on to a concrete pavement and quenched it by hand, measured the breeze carefully and weighed the coke, so that we could get the percentage of total coke to coal carbonized that this type of retort makes. The amount of breeze was really exceedingly small, considering the 3 cubic feet of breeze put into each retort to start with. After subtracting 3 cubic feet of breeze per retort we found that the proportion ran less than 2%. In the case mentioned it was Westmoreland coal. Undoubtedly the coke handling system will make more breeze than that, although we have tried to keep it down as much as possible. As to the time it takes to load and discharge purifying boxes I cannot answer, because we are just now emptying the first box. There is a drop of temperature through the boxes, but it is not serious. This was carefully watched, and showed only 4 or 5° in the coldest weather. We have put a little steam in sometimes, but I question its necessity. When we first considered this plant, silica was suggested for the retorts, but nobody had them put in an installation, and most of the manufacturers had given it up. There is no doubt that silica is the coming material; if it can be made strong enough to stand the pressures in a vertical retort we would be glad to know about it. In regard to sticking of the retorts and the various troubles of operation, the Fall River plant has been free from trouble. No carbonizing plant that I have ever heard of has started up without some difficulty. There is quite a little steam and smoke, but I don't think that is characteristic of verticals, as any intermittent system of carbonization will give the same result. During the week that I had this test taken we did not have any "barring down," but it was necessary to break the crust formed by the breeze in the cases cited. Dry breeze is necessary for the bottom of the retorts. We have put a screen and other arrangements in the DeBrouwer conveyor to get dry breeze. The Fall River plant being entirely new, and never having handled verticals, we are pretty careful about its operation, especially the benches. We have a superintendent who has charge of both water and coal gas works, a works' foreman at the coal gas plant, the main part of whose time is spent in the retort house, and who also looks after the coal and coke handling and general supervision. We have, day and night, one man on 4 hour shifts watching heats. This is excessive, but we were anxious to get the plant running perfectly from the start and reduce supervision gradually.

The 2,500 ton coal bin is so arranged that it will hold about one and a half barges, as we expect barges to come to Fall River averaging about 1,800 tons. This enables the operator to put the contents of each barge into the bin and take it out by gravity. Up to this winter we have been experimenting with various kinds of coal. We would get one barge of coal into the bin, and if another barge arrives with a different coal that we want to keep separate, we put it on the wharf. Up to the present we have not followed this plan of operation closely. The equipment is there and can be followed out if wanted, and that is one of the imporant features of getting good carbonizing results. The bin is concrete, and 50 feet in diameter. In order to cut labor cost we deposit the coal at one point at the top. The fines go to the center and the coarse to the side. In taking the coal out we have a conical bottom, and the coal drops out by gravity. The fines go out first and the coarse follows. We have arranged a screen now to correct that distribution to a great extent, but it was rather an interesting feature that we had not thought of. The burner used during the test is a high cone D burner, with a 7-inch chimney. As to the percentage of nitrogen in the gas; we put in about one and a half to two per cent. of air for revivification purposes, and the rest of the nitrogen comes from the benches. I should be glad to find any figures showing 1 per cent. of nitrogen in coal gas from a practicable operating plant, that is, covering any length of time.

Regarding decarbonizing. We do decarbonize three retorts at a time. Each retort is decarbonized about once in seven weeks; that is, a retort will run about seven weeks before it has to be scurfed a second time. We do about one bench a week.

MR. STILES.—Regarding the drop in candle power I would say that it is maintained as far as the holder, and drops between the holder and the office. In Fitchburg we are making, cubic feet per pound 5.41; cubic feet per retort per 24 hours 26,237; cubic feet per bench 24 hours, 209,900; make per man per 24 hours, 148,339; candle power of gas, 16.03; B. T. U., 614; pounds of coke used for fuel per 100 pounds of coal, 15. That is the average on our two benches. But recently we have covered our new bench with 2 inches of magnesia, and on a recent test run on that bench, rated ot 250,000, we made an average of 258,000 with a bench fuel of 11%; and reduced our chimney dampers 3 inches right after the cover was put on; so that we believe that the cover had something to do with our bench fuel results. Pounds of coke for sale 1,064. per 2,240 pounds coal used. Moisture in coke as measured, .42%. Gallons of tar per 2,240 pounds coal, 16.5. Gallon ounces amoniacal liquor per 2,240 pounds coal, 5.5 pounds. Regarding costs: Comparing 1915 with 1914 on a 7 months' basis; in 1915 we made 83,802,000, in 1914, 41,746,000 of coal gas. Of water gas we made in 1915, 6,444,000, in 1914, 41,890,000. The cost of the coal gas in 1915, was as follows:

Period, Seven Months.

	Coal Gas.	Water Gas.	Mixed.	Repairs.	Holder Cost.	Ton, Coal.	Gas, Oil.
1915.....	18.54	38.12	7.15	1.07	26.35	$4.55	5.5
1914.....	20.35	27.92	7.74	1.79	33.66	4.55	3.2–5 mos
							5.5–2 "

Saving in 1915 over 1914, seven (7) months, in spite of increase of cost of oil from 3.2c. to 5.5c., $2,000 and made 6,600,000 more gas.

The price of oil was the same in December, 1913 and 1914, and January, 1914, and 1915, and the same amount of gas was made at a saving of $1,158 in January and $644 in December.

Zinc as a Boiler Cleaner.

A recent order for export of 400,000 pounds of zinc calls attention to one use to which this metal has been applied abroad, that perhaps is not widely known in the United States. The order was for pure zinc in plates 6 inches by four by a half inch thick, with a half inch hole through the center. The method of using them is as follows: A steel rod is introduced through the side of a boiler, and the plates of zinc with steel or iron washers between are strung on the rod so that there is constant contact between the zinc and iron all the way across the boiler. When the boiler is in use the metals constitute an electric couple, and a galvanic current is set up inside the boiler, which, it is claimed, effectively prevents foaming of the boiler, and also deposition of scale. In this way the use of "boiler compounds" is eliminated, and the boiler kept in good condition for an indefinite period. There does not seem to be any reason why aluminum plates should not produce the same results, and possibly, owing to the difference in specific gravity between aluminum and zinc, more surface could be offered for action by using aluminum.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

THE Beverly (Mass.) Gas and Electric Company is contemplating considerable additions to its main system in Danvers this spring, and will probably extend mains on Lindall, Fellows, Damon, Park, Porter, Hamilton, Mill and River streets. This will afford facilities for all abuttors to have gas ranges and lights.

J. G. LIGHT, for the past three years superintendent of the Niles Gas Light Company of Niles and Buchanan, Mich., will be succeeded by T. W. Long, formerly connected with the Lansing Fuel and Gas Company, Lansing, Mich.

FIRE has been kindled in the ovens of Laclede Gas Light Company's new $2,000,000 coke and gas plant in Carondelet preparatory to the actual operation scheduled for June 15. The plant will have a capacity of 750 tons of coke a day. The nine buildings occupy the larger part of 180 acres, and stands on the site of the old Vulcan iron works. It is the largest plant west of the Mississippi River, according to M. W. Warren, president of the Warren Coke Company, who will handle the output of the ovens, and the first in the West that will manufacture coke as the main product and consider gas a by-product.

SOME salesman think they would lose business if they stop drinking. These friends and others who protest that American business will be ruined if the booze is cut out are on a par, in brains, with the old Scotch lady who lamented the godless invention of gas—superseding, as it did, the time-honored whale oil. "What's to become o' the puir whales?" she asked.

THE Plymouth (Mass.) Gas Light Company recently made an offer to the churches in that city, on the lines of its mains, to install free, new and up-to-date gas ranges in the kitchens of the church buildings. Thus far the First Universalist, Church of the Pilgrimage, Memorial M. E. and Christ Church have availed themselves of the offer. The ranges installed are New Process Cabinets, with white enameled doors, and the women of the various church societies are delighted with them.

GAS mains and pipes in cities in Michigan must be assessed in the ward in which the principal works of the company are situated, according to a ruling made by Attorney General Fellows for the board of state tax commissioners. This question was raised in Sturgis.

THE Niagara Falls Gas and Electric Light Company has applied for a franchise for supplying the village of Kenmore, N. Y., with gas.

WHEN a movement looking to the municipal ownership of the gas plant of Grand Rapids, Mich., took on serious proportions that threatened the private interests involved, the gas company adopted the wisest possible means of furthering its own ends of self-preservation. It advertised in the newspapers. It took the public into its confidence. It told them the facts of its case. It reviewed matters of gas-making, gas distributing and gas cost. It did not limit the presentation of facts to the home company. It drew for information upon the companies of other cities to substantiate its statements. Newspaper advertising proved educational. The people discovered they had known very little at all about the subject. An ignorant following of what was seen to be a political rather than an economic project was converted into an informed state of mind that made the people hesitate to involve themselves in an intricate scientific business that they knew so little about.

THE Providence (R. I.) Gas Company has completed laying of mains in Greystone, and is finishing its extension work in the vicinity of Graniteville. The latter will be piped by next week, it is expected. The company has laid pipes up Waterman avenue past the town line and a short distance into Smithfield.

THE city commissioners of Tuscaloosa, Ala., have reached an agreement with the Birmingham and Tuscaloosa Railway and Utilities Company whereby it is probable Tuscaloosa will be supplied with gas within four months at 90 cents. The company will begin work in 15 days. Over $20,000 worth of mains have already been laid.

THE North Pacific Public Service Company is the name of the new organization that has taken over the Centralia and Chehalis Gas Company with the gas companies of Grays Harbor, Bremerton and two or three other localities in the State of Washington. A mortgage covering all of the combined personal and real property of the concerns in question is made out to the Columbus Trust Company, as trustee, to secure a $1,000,000 bond issue.

THE Councils of Archbold and Stryker, O., have granted franchises to the Archbold & Stryker Gas Co. to sell artificial gas for full and lighting in the villages. The gas will be piped from the Bryan plant of the Ohio Gas, Light & Coke Co. The company has been incorporated with $30,000 capital stock.

THE selectmen, of Needham, Mass., have received a communication from S. Smith, in regard to installing gas in Needham, submitting a new franchise, which complies with the request that a bond of $5,000 be furnished by him guaranteeing that the streets where pipes are laid will be returned to as good a condition as previously existed. The filing of a bond of $5,000, also asked by the selectmen, as a guarantee that the plant would be installed within the time stated in the franchise, namely, two years, was not included.

THE Elkhart (Ind.) Gas & Fuel Company has contracted for improvements that will cost approximately $15,000. A contract has been signed with the Kerr Murray Company for doubling the purifying capacity of the plant, and new retorts will be purchased from the Parker Russell Mining and Manufacturing Company.

THE Gas and Electric Department of Holyoke, Mass., has awarded the contract for furnishing 400,000 gallons, more or less, of gas oil to the Gulf Refining Company of Texas. The successful bidders figures were .0336 cents per gallon.

PLANS are being made by the Stacey Brothers Gas Construction Company to build a gas plant in St. Bernard, O.

A. L. SCHUBERT, calling himself a chemist, charged that the Pacific Gas and Electric Company and the Sacramento Gas Company are using unscientific and out of date methods in making gas, producing an inferior grade. He stated that the men in charge of the gas plants are not technically skilled in their business. As a result of his statements the city commission of Sacramento, Cal., decided to send Schubert with a representative of the city through the gas plants of the city, to report to the commission when the gas rate hearing is continued. In answer to Schubert's charges, representatives of the gas companies claimed that they are using the most modern methods known in gas making, and that Schubert's ideas, although theoretically and chemically sound, are not practical, and would endanger lives of employees.

THE Palatka (Fla.) Gas Light and Fuel Company has enlarged and modernized its plant, a double equipment having been installed throughout, and the city will now have first class service. A large fire whistle has been placed at the plant and provision made for an electric fire alarm service on the poles of the company.

THE Central Indiana Gas Company, which gives service to nine towns, has petitioned the Public Service Commission for authority to more than double the rates it now receives from domestic consumers of natural gas piped to Indiana from the gas fields of West Virginia. The towns served by the company are Marion, Muncie, Anderson, Elwood, Hartford City, Fairmount, Alexandria, Riverside City and Normal City. The present net rate to domestic consumers is 40 cents a 1,000 cubic feet, and the company desires to boost the price to 90 cents. The petition has been set for hearing on June 24. The company supplied artificial gas to its consumers at the 90-cent rate until twenty months ago, when it reduced the price and contracted for natural gas Now the company asserts that it made a mistake in reducing the price and asks that the rate it received for artificial gas be restored.

O. W. HALLADAY has resigned from the Marlboro-Hudson Gas Company. He managed the plant and business during the last three years and was well liked by patrons. His resignation was received with surprise and regret by all who knew him. He is succeeded by Chester A. Davis, who was his assistant.

WILLIAM Y. CARTWRIGHT, vice-president of the Union Gas & Electric Company of Cincinnati, was chosen president of the Natural Gas Association of America. Other officers chosen are: Vice-

president, Joseph F. Cuffey, Pittsburgh; secretary and treasurer, Thomas C. Jones, Delaware, O.; directors, J. R. Munce, Charleston, W. Va.; Kay C. Krick, Columbus, O.; John B. Crawford, Oil City, Pa.; A. G. Curtis, Shreveport, La.; Harry J. Hoover, Cincinnati, O., and V. L. Elbert, St. Joseph, Mo. Pittsburgh, Pa., was selected for the next meeting place.

MANAGER SOPER of the Taunton (Mass.) Gas Light Company, wants to make the central part of Taunton a "bright light" district. He has two ornamental iron poles for the display of two "white way" high power gas street lights, that the company wants to contribute without cost to the city, for a better lighted business district. Each of the poles will carry two arc lights, and will be set in the curbing opposite the office of the company on the south side of City Square. Mr. Soper says the company, after the necessary permits are given by the council, will equip and keep them running without a penny of expense to the city, and only asks that gas for illuminating purposes be compared with other light producing sources.

THE Boston Section of the Gas Meeters held their Spring meeting at the Hotel Brenton, Nahant, Mass., on May 20. Mr. J. P. Barstow, of the Barstow Stove Co., Providence, R. I., spoke very entertainingly on his recent trip to the Panama-Pacific Exposition. Sixty members were present and enjoyed an interesting musical program. The following officers were chosen for next year: E. B. Mooney, Brockton Gas Light Company, Brockton, Mass, Chairman; Andrew Pettingell, Cambridge Gas Light Company, Cambridge, Mass., Secretary-Treasurer; Elmer Stack, Stack Heater Company, Boston, Mass., E. W. Allen, Lynn Gas and Electric Company, Lynn, Mass., and C. T. Aaron, Detroit Stove Works, Detroit, Mich., Commissioners.

ARTICLES of incorporation of a new gas company for the upper part of Westchester County, N. Y., have been filed by the Municipal Lighting Company, of Mount Kisco. The corporation is capitalized at $100,000 and the stockholders include W. C. Hoyt, of Garden City, L. I., who holds 750 of the $100 shares; John E. Samborn. of New Rochelle, and W. C. Phelps, of Mount Vernon, who each hold ten shares. The directors are Morris Pollinger, of the Bronx; Joseph Zeppa, James Lennox Banks, Jr., Reginald Roome, Chauncey B. Carver, Frederick N. Gilbert and Frederick W. Jackson, all of New York; J. Livingston Hanna and P. F. W. Butler, of Brooklyn; Stephen G. Kenk, of Summitt, N. J., and Harry W. Forbes.

MEMBERS of the Choral Club—a singing society composed of employes of the Peoples Gas Light and Coke Co., Chicago, recently gave a concert on the main floor of the Gas building, sixty taking part in the concert. Rudolph Schenck was the conductor. On June 26 the club will give a roof-garden concert on the roof of the Gas building, and on June 28 the society will hold its annual picnic at Ravinia park.

THE Louisville (Ky.) Gas and Electric Company is enlisting the boys of the high school grades in a campaign for house heating by gas. The boys are to be paid cash commissions for securing heating prospects to be interviewed by the company's regular salesmen. If the salesman closes an order the boy's commission is deposited to an account opened for him at the German Insurance Bank, which is co-operating in the plan. The orders are taken for fall delivery, the customer being called upon for no cash except a nominal fee to bind the bargain. In order to properly instruct the boys and make their work effective, gas heating classes are to be organized and taught by Robert Montgomery, the company's commercial manager.

MR. F. A. C. STACEY was recently elected president and general manager of the Stacey Manufacturing Company, following the resignations of Messrs. J. E. Stacey and A. J. Stacey, formerly president and general manager and assistant manager, respectively. Mr. F. A. C. Stacey is one of the original incorporators, with many years of active connection with the company, and all associate members, department heads and other employees who have proven their faithfulness and loyalty in the years past and to whom the success and prestige of the company is largely attributed, remain with the company. With their modern organization and well equipped plant, they are in a position to serve your wants with the same care, precision and alacrity as during the past some sixty odd years, and with even greater efficiency.

Maximum Service—Minimum Cost

is their policy, and inquiries for anything in connection with a gas plant, or plate and structural metal work, are solicited.

UTILITIES COMMISSION NEWS.

STATUS OF COMMISSIONERS.—Mr. William R. Willcox, formerly chairman of the New York Public Service Commission, First District, appeared recently before the public utilities committee of the Constitutional Convention to urge that public service commissioners be made constitutional officers and that their terms of office be extended from 5 to 10 years. He said that Governor Whitman is experiencing great difficulty in getting men of proper caliber for the commission. One reason is the short term, and another is the fact that without constitutional protection the places are subject to political control. Mr. Willcox said that, except as to questions of law, there should be no court review of commission decisions. He would not go so far as to deprive the Legislature, which is the source of the rate-making power, of the right to make rates, though it would be wise for that body to refrain from exercising this right generally. He declared that excesses in bond and stock issues by public service corporations, had much to do with the creation of the commissions, and that if the commissions did not have power to regulate security issues there would be no regulation at all.

Mr. John N. Carlisle, formerly of the Second District Commission, said that unless members of the commission were removed from political influences it would be very difficult to get men worth the salaries paid. No governor has been strong enough to resist party demands for the appointment of members to the commissions. Mr. Carlisle thought that the salaries of the commissioners should be reduced, so that commissionerships would not be such a lure to politicians. He declared that under present conditions a man who is really worth $15,000 a year is foolish to become a member of the commission, for he cannot tell at what minute he will be removed to make room for a political favorite.

Commissioner Van Santvoord said: "I am against the inclusion of the bi-partisan idea in the statute. Automatically this injects politics into the Commission. Ordinarily commissions are non-partisan if left alone. Through all the time I have been on this commission I have never heard a matter of politics discussed. Why throw this bomb shell of partisanship into the commission?"

NEW INDIANA COMMISSIONERS.—Governor Ralston has reappointed Messrs. Charles J. Murphy, of Brookston, and Charles A. Edwards, of Huntington, to membership on the commission for four years from May 1. Mr. Murphy has resigned as a member of the Democratic State committee and chairman of the Tenth Congressional district committee because of a ruling of the Attorney-General on the new primary election law. The Attorney-General holds that this law prohibits persons holding appointive offices from serving as members of a political committee.

TOWN AUTHORITIES WANTED COMPETITION.—On a memorandum by Commissioner Carr, the Public Service Commission Second District, N. Y., has approved the application of the Middleville Electric Light Company for permission to construct lines in the town of Newport, Herkimer county, and to exercise rights and privileges under a franchise therefor. The application was opposed by the Newport Electric Light and Power Company, which claimed that it had been given a similar franchise by the town authorities. It was admitted that the chief purpose of the new lines was to serve with electricity the Herkimer County Home. The town authorities said they had granted the two franchises because they wanted the two companies to compete for the business.

Commissioner Carr finds, however, that as the Middleville company is four miles nearer the Home than the Newport company, as the Newport company would have to build six miles of lines, which would probably have to go through Middleville, and as the business to be secured would hardly warrant the remunerative construction of such a line, whereas there is no doubt of the ability of the Middleville company to construct a line and take the business, the application of the Middleville company should be approved.

NOT NECESSARY TO LEAVE METER SLIP.—Gas and electric companies of the District of Columbia will not be required to have their meter readers to make out and leave on the premises a statement showing the date and hour that the reading was made and the state of the meter. The public utilities commission could not find any necessity for such a system, which would involve additional work on the part of the companies and since it is already possible for the consumer to check the readings, which are made at approximately the same time each month and noted on the bill.

Financial Notes.

THE BRONX GAS & ELECTRIC COMPANY, NEW YORK, N. Y., has been granted authority to issue $200,000 of 5% first and refunding mortgage bonds. The Commission permits the issue of these bonds at 90 because of the money market conditions, but stipulates that the discount must be amortized by a regular fixed charge for amortization of 5%, the other 5% to come out of surplus earnings. The proceeds will be used for acquisition of property and for construction, completion, extension and improvements.

THE OHIO CITIES GAS COMPANY, one of the Dawes properties, has issued its first annual report, the fiscal year ending March 31, 1915. The statement indicates that the company earned 9% on its common stock, on which quarterly dividends of 1¼% are being paid, after providing for all fixed and other charges, including preferred dividends. The company is now entirely a distributing company so far as its natural gas department is concerned, having disposed of its pipe lines and Ohio gas territory to the Ohio Fuel Supply Company. Substantially the entire capital stocks of all subsidiaries, with the exception of the directors' qualifying shares, are owned by the holding company, formed in April, 1914, with an authorized capital of $10,000,000 common and $10,000,000 5¼% preferred, of which $7,250,000 preferred and $6,500,000 common are outstanding. Gross earnings for the year were $2,645,740, with net of $983,868. Interest charges were $101,910 and dividends $630,124, leaving a surplus af $250,834. The balance sheet showed current assets of $1,822,515, of which $320,184 was in cash, with current liabilities of $293,871. In the year $197,661 was expended for improvements to the gas properties.

THE CONSOLIDATED GAS, ELECTRIC LIGHT AND POWER COMPANY, of Baltimore, has declared the regular quarterly dividend of 1¾% on the common stock, payable July 1 to stock of record June 15.

IT was learned to-day that Richter & Company, of Hartford, are associated with Bodell & Company, of Providence, in the purchase of the controlling interest of the common stock of the HARTFORD CITY GAS LIGHT COMPANY from the United Gas and Electric Company. The common stock of the company outstanding is 50,000 shares of par value of $25. The block of stock purchased by the two financial houses is approximately 36,000 shares, or about 71% of the common stock. Hartford City Gas Light common was quoted on the local exchange Tuesday at 63 offered with sales at 62. There are also 30,000 shares of preferred stock.

THE LYNN GAS & ELECTRIC COMPANY has been authorized by the Massachusetts Gas and Electric Commission to issue 4,425 shares of new stock, par $100 to be offered to stockholners at $240 per share, in ratio of 177 shares for every 473 shares held. The stock is now quoted at $380 and $390, while the rights have sold at from 30 to 33 cents.

THERE is a call for American capital in South America. The European war threatens seriouly to handicap the development of public service industries such as gas and electric light companies and telephone companies. The financial depression immediately preceding the war led to a temporary cessation of extensions and other improvements, so that when the war opened their existed a very definite need for the improved conditions. Failure to make such improvements will mean a serious handicap to the industrial progress of these countries. One of the important purposes which the official delegates to the Pan-American Financial Congress have in mind is to devise some plan by which the needs of South American enterprises will be met by American capital. The financing of such enterprises by American capital will mean a greatly extended market for American manufacturers.

THE subsidiary companies of MASSACHUSETTS GAS report for April net earnings available for dividends $240,195, as compared with $230,902 in April, 1914. For the ten months the net earnings were $2,191,459, as compared with $2,114,494 a year ago. The gas companies report for April an increase of $12,412, and the coal companies a decrease of $3,116; while for the 10 months the gas companies increased their net earnings by $153,493, and the coal companies decreased their earnings by $76,528.

THE LACLEDE GAS LIGHT COMPANY declared a regular semi-annual dividend of 2½% on preferred and 1¾% on common stock.

THE BROOKLYN UNION GAS COMPANY has declared the regular quarterly dividend of 1½%, and the usual semi-annual extra dividend of 1%, both payable July 1 to stock of record June 16. In making dividends since 1905 average 6%, a total of 8% has been paid. The total amount necessary to make this average was 9½%, so that 1½% remains to be declared.

THE COAST COUNTIES GAS & ELECTRIC COMPANY, Santa Cruz, Cal., has been granted authority to issued 1,000 shares of 6% first preferred stock. The company proposes to sell the stock at not less than 90, and the decision allows for a 5% commission if that is found necessary.

THE LOUISVILLE GAS & ELECTRIC COMPANY reports for the year ended Dec. 31, last, gross earnings of $2,038,366; net earnings, $854,104, and a surplus of $381,810. In January, 1915, gross earnings amounted to $217,767; net earnings, $97,652, and surplus, $56,478. The balance sheet as of Jan. 31, 1915, shows cash amounting to $144,214 and total assets and liabilities of $22,996,168.

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